

Serial No.: 10/660,471
Confirmation No.: 4947
Applicant: PALMBERG *et al.*
Atty. Ref.: 06730.0056.NPUS00

IN THE CLAIMS:

1. (Currently Amended) A hydraulic power assisting steering apparatus comprising a valve that is arranged to be actuated depending on an applied torque for altering pressure of an hydraulic fluid to be received by a hydraulic power steering system for applying a steering assist force, wherein the valve is arranged to be dynamically actuated further, according to a control mechanism depending on at least one external or internal vehicle input parameter, said valve comprising a peripherally toothed member engaged with a cog wheel that is rotary driven and stationarily located relative to the valve.
2. (Original) The hydraulic power assisting steering apparatus of claim 1, wherein the valve is arranged to be dynamically actuated further by a hydraulically, a pneumatically or a electromechanically displacing of one member of the valve.
3. (Original) The hydraulic power assisting steering apparatus of claim 2, wherein one valve member is arranged to be rotatably and/or axially displaced with respect to a shaft in the hydraulic power steering system.
4. (Previously Presented) A hydraulic power assisting steering apparatus according to claim 3, wherein the valve member is arranged to be electromechanically displaced by an electric motor.
5. (Previously Presented) The hydraulic power assisting steering apparatus of claim 4, wherein the electric motor is arranged to actuate a wheel or a cam, which are arranged to engage the valve member.
6. (Original) The hydraulic power assisting steering apparatus of claim 5, wherein the wheel is a toothed wheel arranged to engage a toothed member on the valve member for a rotary displacement of the valve member.

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7. (Previously Presented) The hydraulic power assisting steering apparatus of claim 5, wherein the cam is arranged to rotatably engage with a guide portion arranged on the valve member for an axial displacement of the valve member.

8. (Original) The hydraulic power assisting steering apparatus of claim 7, wherein the valve member is arranged so that an axial displacement of the valve member causes it to be rotatably displaced.

9. (Currently Amended) A method for actuating a valve in a hydraulic power assisting steering apparatus depending on an applied torque, so as to alter pressure of an hydraulic fluid to be received by a hydraulic power steering system for applying a steering assist force, the method comprising dynamically actuating the valve according to a control mechanism depending on at least one external or internal vehicle input parameter, said valve comprising a peripherally toothed member engaged with a cog wheel that is rotary driven and stationarily located relative to the valve.

10. (Original) The method of claim 9, wherein the valve is dynamically actuated further by a hydraulically, a pneumatically or a electromechanically displacing of one member of the valve.

11. (Currently Amended) A hydraulic power assisting steering apparatus comprising a valve that is arranged to be actuated depending on an applied torque for altering pressure of an hydraulic fluid to be received by a hydraulic power steering system for applying a steering assist force, wherein the valve is arranged to be dynamically actuated further according to a control mechanism selected from the group consisting of hydraulically, pneumatically and electromechanically displacing one member of the valve, wherein electromechanically displacing the one member of the valve includes rotatable and/or axial displacement with respect to a shaft in the hydraulic power steering system using an electric motor, said valve comprising a peripherally toothed member engaged with a cog wheel that is rotary driven and stationarily located relative to the valve.

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12. (Previously Presented) The hydraulic power assisting steering apparatus of claim 1, wherein the valve has a first valve member and a second valve member arranged to be actuated with respect to each other, depending on the applied torque and a vehicle input parameter so as to dynamically adjust the steering assist force to fit a specific driving scenario.

13. (Previously Presented) The hydraulic power assisting steering apparatus of claim 12, wherein the first and second valve members are arranged to be rotatably and/or axially displaced with respect to each other.

14. (Previously Presented) The hydraulic power assisting steering apparatus of claim 13, wherein at least one of the valve members is arranged to be dynamically actuated further using a control mechanism selected from the group consisting of hydraulic, pneumatic and electromechanical displacement of the at least one valve member.

15. (Previously Presented) A hydraulic power assisting steering apparatus according to claim 14, wherein the at least one of the valve members is arranged for electromechanical displacement using an electric motor.

16. (Previously Presented) The hydraulic power assisting steering apparatus of claim 15, wherein the electric motor is operatively arranged for interaction with actuating means selected from a wheel and a cam that engages the at least one of the valve members.

17. (Previously Presented) The hydraulic power assisting steering apparatus of claim 16, wherein the wheel is a toothed wheel arranged to engage a toothed member on the at least one valve member for rotary displacement thereof.

18. (Previously Presented) The hydraulic power assisting steering apparatus of claim 16, wherein the cam is arranged to rotatably engage with a guide portion formed on the at least one valve member for at least an axial displacement of the valve member.

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19. (Previously Presented) The hydraulic power assisting steering apparatus of claim 18, wherein the at least one valve member undergoes axial and rotational displacement of the at least one valve member.

20. (Previously Presented) The method of claim 9, wherein the valve has a first valve member and a second valve member arranged to be actuated with respect to each other, depending on the applied torque and vehicle input parameter.

21. (New) A hydraulic power assisting steering apparatus comprising: a valve that is arranged to be actuated depending on an applied torque for altering pressure of a hydraulic fluid to be received by a hydraulic power steering system for applying a steering assist force, wherein the valve is arranged to be dynamically actuated via a member thereof according to a control mechanism depending on at least one external or internal vehicle input parameter, the valve member being arranged to be rotatably or axially displaced with respect to a shaft in the hydraulic power steering system; and a motor that actuates a wheel or cam which engages the valve member, the cam being arranged to rotatably engage with a guide portion arranged on the valve member for axially displacing the valve member.

22. (New) The hydraulic power assisting steering apparatus of claim 21, wherein the valve is arranged to be dynamically actuated further by a hydraulically, a pneumatically or a electromechanically displacing of one member of the valve.

23. (New) A hydraulic power assisting steering apparatus of claim 22, wherein the valve member is arranged to be electromechanically displaced by an electric motor.

24. (New) The hydraulic power assisting steering apparatus of claim 23, wherein the electric motor is arranged to actuate the wheel or cam that engage the valve member.

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25. (New) The hydraulic power assisting steering apparatus of claim 24, wherein the wheel is a toothed wheel arranged to engage a toothed member on the valve member for a rotary displacement of the valve member.

26. (New) The hydraulic power assisting steering apparatus of claim 25, wherein the valve member is arranged so that an axial displacement of the valve member causes it to be rotatably displaced.

27. (New) The hydraulic power assisting steering apparatus of claim 21, wherein the valve has a first valve member and a second valve member arranged to be actuated with respect to each other, depending on the applied torque and a vehicle input parameter so as to dynamically adjust the steering assist force to fit a specific driving scenario.

28. (New) The hydraulic power assisting steering apparatus of claim 27, wherein the first and second valve members are arranged to be rotatably and/or axially displaced with respect to each other.

29. (New) The hydraulic power assisting steering apparatus of claim 28, wherein at least one of the valve members is arranged to be dynamically actuated further using a control mechanism selected from the group consisting of hydraulic, pneumatic and electromechanical displacement of the at least one valve member.

30. (New) A hydraulic power assisting steering apparatus according to claim 29, wherein the at least one of the valve members is arranged for electromechanical displacement using an electric motor.

31. (New) The hydraulic power assisting steering apparatus of claim 30, wherein the electric motor is operatively arranged for interaction with actuating means selected from a wheel and a cam that engages the at least one of the valve members.

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32. (New)The hydraulic power assisting steering apparatus of claim 31, wherein the wheel is a toothed wheel arranged to engage a toothed member on the at least one valve member for rotary displacement thereof.

33. (New) The hydraulic power assisting steering apparatus of claim 31, wherein the cam is arranged to rotatably engage with a guide portion formed on the at least one valve member for at least an axial displacement of the valve member.

34. (New) The hydraulic power assisting steering apparatus of claim 33, wherein the at least one valve member undergoes axial and rotational displacement of the at least one valve member.